REMARKS

Claims 1 - 18 are pending in the application. Claims 19 – 21 were previously canceled.

The present application is claiming priority of U.S. Provisional Application Serial No. 60/130,221, filed 20 APR 1999. The Examiner has not yet acknowledged this claim to priority. Applicant respectfully requests that the Examiner acknowledge this claim to priority in the next Office correspondence.

Additionally, the Examiner has not yet indicated whether the drawings are accepted or objected to. Applicant respectfully requests that in the next Office correspondence, the Examiner affirmatively indicate whether the drawings are accepted or objected to.

In section 3 of the Office Action, claim 13 is objected to because of an informality. Applicant amended claim 13 to correct the informality. Applicant submits that whereas the amendment to claim 13 is for correction of an informality, the amendment does not create any file history estoppel with respect to the scope of claim 13. Withdrawal of the objection is respectfully solicited.

In section 4 of the Office Action, Claims 1 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,832,515 to Ledain et al. (hereinafter "the Ledain et al. patent"). Applicant respectfully traverses this rejection.

Claim 1 provides a method for enabling improved access to data from a computer memory system during a data recovery operation, where the computer memory has data in a first log, and a copy of the data in a second log. The method includes (a) responding to a process request to read the data from the first log, by determining a parameter indicative of demand for access to read the first log, and (b) assigning the process to read the copy of the data from the second log if the parameter has reached a threshold value.

The process is one of a plurality of processes concurrently attempting to read the first log during the data recovery operation.

The Ledain et al. patent discloses a storage system having a main filesystems disks 40 (col. 9, line 6) and log device disks 52 (col. 9, line 28). The system also includes a log device pseudo-device driver 44 that selectively provides for the routing of filesystem data directed to main filesystem disks 40 to be at least temporarily stored and potentially read back from log device disks 52 (col. 9, lines 24 – 28).

The Office Action states that the Ledain et al. patent discloses a computer memory system having data in a first log (log device pseudo-device driver 44) and a copy of the data in a second log (log device disks 52). Applicant respectfully disagrees.

Log device pseudo-device driver 44 is not a log, but, as explained above, is for the routing of filesystem data directed to the main filesystem disks 40 to be at least temporarily stored and potentially read back from the log device disks 52 (col. 9, lines 24 – 28). Whereas log device pseudo-device driver 44 is not a log, and whereas the system in the Ledain et al. patent includes **only one log, i.e., log device disks 52**, the Ledain et al. patent does not describe a computer system having data in a first log and a copy of the data in **a second log**, as recited in claim 1.

The Office Action states that the Ledain et al. patent, at col. 9, lines 19 – 22, discloses responding to a process request to read data from a first log by determining a parameter indicative of demand for access to read the first log. Applicant respectfully disagrees.

The Ledain et al. patent, at col. 9, lines 19 – 24, which includes the cited lines 19 - 22, states:

> Thus, at least data that is to be written to or read from a selected filesystem
> nominally maintained on the main filesystem disks 40 is routed through the
> log device pseudo-device driver 44 and may be made subject to the control

operations established by the execution of the log device pseudo-device driver 44.

Although, the passage at col. 9, lines 19 – 24 mentions "control operations", **it does not disclose any particular parameter, much less a parameter indicative of demand for access to read a log, as recited in claim 1.**

not in the claim

The Office Action states that the Ledain et al. patent, at col. 9, lines 45 – 50 discloses a process being one of a plurality of processes concurrently attempting to read a first log during a data recovery operation, and also cites col. 5, lines 23 – 26. The cited passage at col. 9, lines 45 – 50 states:

> The **write data path 42** through the log device pseudo-device driver 44 to the log device disk 52 **will be co-dependant on the concurrent use of the read data path** from the log device disk 52 through the log device pseudo-device driver 44 to the operating system core 32 via the path 50 (emphasis added).

The cited passage at col. 5, lines 23 – 26 states:

> Therefore, a substantial need now exists for a new filesystem architecture that is optimized, including during ongoing operation, for **both read and write accesses concurrent with processes for ensuring data integrity and fast crash recovery**, and the m any p ractical i ssues i nvolved i n p roviding and managing a high performance filesystem (emphasis added).

Thus, the cited passage at col. 9, lines 45 – 50 discloses write path 42 as being co-dependant on the concurrent use of a read data path, and the cited passage at col. 5, lines 23 – 26 discloses read and write accesses being concurrent with processes for ensuring data integrity and fast crash recovery. Neither of the cited passage at col. 9, lines 45 – 50 nor the cited passage at col. 5, lines 23 – 26 describe or suggest a processes is one of a plurality of processes **concurrently attempting to read a first log during a data recovery operation**, as recited in claim 1.

The Office Action, on page 4, acknowledges that the Ledain et al. patent does not explicitly disclose assigning a process to read a copy of data from a second log if a parameter has reached a threshold value. However, the Office Action then suggests that this feature is well known, and cites a passage at col. 29, lines 57 - 60, and a passage at col. 30, lines 19 – 24. The cited passage at col. 29, lines 57 – 60 states:

> Once a log disk has reached the filled segment threshold, the head of the logical log wraps to the next log disk in sequence. Thus, the log structured device operates as a logically continuous **circular buffer** for data segments (emphasis added).

The cited passage at col. 30, lines 19 – 24 states:

> As part of the data segment cleaning, the relocations information within the user data segment trailer is examined to **determine whether any particular log block has been relocated through cleaning in excess of a threshold number of relocations**; the threshold number may be set to an adaptive control defined value (emphasis added).

Thus, the cited passage at col. 29, lines 57 – 60 is directed toward a feature of a device operating as a circular buffer, and the cited passage at col. 30, lines 19 – 24 is directed toward an operation that considers whether a log block has been relocated in excess of a threshold number of relocations. Neither of the cited passage at col. 29, lines 57 – 60 nor the cited passage at col. 30, lines 19 – 24 even describe or suggest a parameter indicative of demand for access to read a first log, much less assigning a process to read a copy of the data from a second log **if the parameter (indicative of demand for access to read a first log) has reached a threshold value**, as recited in claim 1.

Moreover, whereas the Ledain et al. patent only discloses log device disks 52, and so, **does not disclose a second log,** the Ledain et al. patent cannot possibly describe or suggest assigning the process to read the copy of the data **from the second log** if the parameter has reached a threshold value, as recited in claim 1.

For the foregoing reasons, Applicant respectfully submits that the Ledain et al. patent neither describes nor suggests all of the elements of claim 1. Accordingly, Applicants submit that claim 1 is patentable over the Ledain et al. patent.

Claims 2 – 6 depend from claim 1. By virtue of this dependence, claims 2 – 6 are also patentable over the Ledain et al. patent.

Furthermore, claims 4 and 5 also recite a feature that involves a second log, and in particular, an attempt to balance work of the first and second logs. Applicant notes that page 5 of the Office Action cites the Ledain et al. patent, col. 17, line 65 – col. 18, line 6 in support of the rejections of claims 4 and 5. The cited passage at col. 17, line 65 – col. 18, line 6 states:

> The balance of the current data segment may be filled with new data blocks written through the data interface 66 or as a result of cleaning the new log tail data segment. Where data blocks are actively being directed through the data interface 66 for storage on the log device, the compacted data blocks obtained from the prior log tail data segment may be mixed in order of receipt by the segment I/O routine 78 into the current segment buffer maintained by the segment I/O routines 78.

Applicant does not find that the cited passage at col. 17, line 65 – col. 18, line 6 discloses a second log, much less an attempt to balance work of the first and second logs, as recited in claims 4 and 5. Thus, claim 4 and 5 are also patentable on their own merits.

Claim 7 is an independent claim and includes recitals similar to those of claim 1, as described above. Thus, claim 7, for reasons similar to that of claim 1, is patentable over the Ledain et al. patent.

Claims 8 – 12 depend from claim 7. By virtue of this dependence, claims 8 – 12 are also patentable over the Ledain et al. patent. Furthermore, claims 10 and 11 also recite a feature that involves an attempt to balance work of the first and second logs.

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Whereas the Ledain et al. patent does not disclose an attempt to balance work of the first and second logs, claim 10 and 11 are also patentable on their own merits.

Claim 13 is an independent claim and includes recitals similar to those of claim 1, as described above. Thus, claim 13, for reasons similar to that of claim 1, is patentable over the Ledain et al. patent.

Claims 14 – 18 depend from claim 13. By virtue of this dependence, claims 14 – 18 are also patentable over the Ledain et al. patent. Furthermore, claims 16 and 17 also recite a feature that involves an attempt to balance work of the first and second logs. Whereas the Ledain et al. patent does not disclose an attempt to balance work of the first and second logs, claims 16 and 17 are also patentable on their own merits.
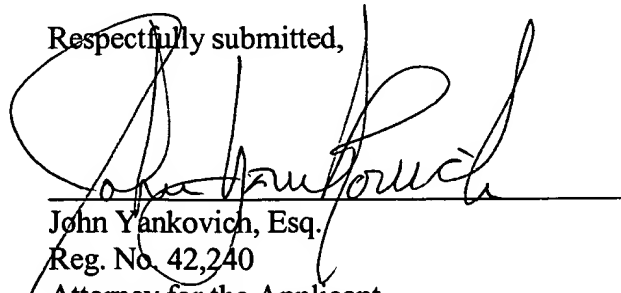
Applicant respectfully requests reconsideration and withdrawal of the section 103(a) rejection of claims 1 – 18.

In view of the foregoing, Applicant respectfully submits that all claims presented in this application patentably distinguish over the prior art. Accordingly, Applicant respectfully requests favorable consideration and that this application be passed to allowance.

Respectfully submitted,

16 MAR 2004
Date

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